## INDEX TO VOLUME III.

SUBJECTS.			
ALGOL Variable B.D.+ 17° 4367. E. C. Pickering -			PAGE 200
ARC, Appearance of Lines in the Spectra of the Sun and Elect			200
E. Jewell	inc.	Los	89
ARC-SPECTRA of Certain Elements, Effect of Pressure on the	Was	ve.	09
lengths of Lines in the. W. J. Humphreys and J. F.			114
ARC-SPECTRA of the Elements. IV. Rhodium, Ruthenium and			114
dium. H. A. Rowland and R. R. Tatnall	-		286
ASTROPHYSICS, Standards in			I
Application of Jewell, Humphreys and Mohler's Results	to C	er-	•
tain Problems of. George E. Hale	-		156
ATMOSPHERE of Jupiter, Refraction in			394
Pressure of the "Reversing Layer" of the Solar. L. E.		ell.	394
J. F. Mohler and W. J. Humphreys			138
B.D.+17° 4367, Algol Variable. E. C. Pickering -			200
BRUCE Gift to THE ASTROPHYSICAL JOURNAL			150
BRUCE Spectroscope of the Cambridge Observatory. H. F.	New	all	266
CAMBRIDGE Observatory, Bruce Spectroscope. H. F. Newall			266
8 CEPHEI, Short Period Variable. L. A. Eddie			227
CLÈVEITE Gas, Spectrum of. C. Runge and F. Paschen -	-	-	4
COMET Holmes, Observations of. E. E. Barnard -		-	41
COMET'S Tails, Electrical Theory of. R. A. Fessenden -		-	36
CONCAVE Grating as an Analyzing or Direct Comparison Spectr		pe.	
F. L. O. Wadsworth			47
CONDITIONS of Maximum Efficiency in the Use of the Spectro	ograp	oh.	
F. L. O. Wadsworth			321
CYLINDER Oils for Reflecting Surfaces. Samuel V. Hoffman			293
D3 IN SUN, Wave-length of. J. F. Mohler and L. E. Jewell			351
ECLIPSE of the Sun, Effect of, on the Visibility of the Solar		ni-	
nences. George E. Hale	-	-	374
EFFICIENCY in the Use of the Spectrograph. F. L. O. Wadsw	orth		321
ELECTRIC Arc, Appearance of Lines in the Spectra of the Su			
L. E. Jewell			89
ELECTRICAL Theory of Comet's Tails. R. A. Fessenden -		-	36
ELEMENTS, Arc-Spectra of. IV. Rhodium, Ruthenium and Pall	adiu	m.	
H. A. Rowland and R. R. Tatnall			286

ELEMENTS, Effect of Pressure on the Wave-lengths of Lines in the	PAGE
	114
FLUORESCENCE of Sodium and Potassium Vapors. Eilh. Wiedemann	
	207
GAS, Spectrum of Clèveite. C. Runge and F. Paschen	4
Gases Obtained from Uraninite. J. Norman Lockyer	29
GRATING, Concave, as an Analyzing or Direct Comparison Spectro-	
scope. F. L. O. Wadsworth -	47
HARVARD College Observatory, Circular No. 3, p. 77; No. 4, p. 162;	
No. 5, p. 213; No. 6, p. 296. E. C. Pickering	
HELIUM Lines, Wave-length of, in Vacuum Tubes. J. F. Mohler and	
	351
	348
	41
HUMPHREYS, Mohler and Jewell, Note on the Results of. Arthur	
	292
HUMPHREYS, Mohler and Jewell's Results, Application of, to Certain	
Problems of Astrophysics. George E. Hale	156
INFRA-RED Spectrum, Wave-lengths in. James E. Keeler -	63
JEWELL, Humphreys and Mohler, Note on the Results of. Arthur	
	292
JEWELL, Humphreys and Mohler's Results, Application of, to Certain	
	156
JUPITER, Refraction in the Atmosphere of	394
	247
Laws of Radiation, Mr. F. W. Very's Remarks Concerning my Note	
	150
	147
LIGHT Curves of Variable Stars Determined Photometrically. E. C.	
0	281
LINES, Coincidence of Solar and Metallic. L. E. Jewell -	89
Effect of Pressure on Wave-lengths of. W. J. Humphreys and J.	
	114
	89
Wave-length of some Helium, in Vacuum Tubes. J. F. Mohler	
and L. E. Jewell	351
MARS, Spectrum of. L. E. Jewell	255
	226
METALLIC LINES, Coincidence of Solar and. L. E. Jewell -	89
MODERN SPECTROSCOPE. XV. On the Use and Mounting of the Con-	
cave Grating as an Analyzing or Direct Comparison Spectro-	
scope. F. L. O. Wadsworth	47

INDEX OF SUBJECTS	409
	FAGE
MODERN SPECTROSCOPE. XVI. A Simple Optical Device for Com-	
pletely Isolating or Cutting out any Desired Portion of the	
Diffraction Spectrum, and Some Further Notes on Astronomical	
Spectroscopes. F. L. O. Wadsworth	169
XVII. Description of a Spectroscope (The Bruce Spectroscope)	
Recently Constructed for use in Connection with the 25-inch	
Refractor of the Cambridge Observatory. H. F. Newall -	266
XVIII. On the Conditions of Maximum Efficiency in the Use of	
the Spectrograph. F. L. O. Wadsworth	321
MOHLER, Humphrey, and Jewell's Results, Application of, to Cer-	
tain Problems of Astrophysics. George E. Hale	156
MOHLER, Jewell, and Humphreys. Note on the Results of. Arthur	
Schuster	292
MOUNTING of the Concave Grating as an Analyzing or Direct Com-	
parison Spectroscope. F. L. O. Wadsworth	47
OBJECTIVE of the Yerkes Observatory. Test of the Forty-inch. James	
E. Keeler	154
OILS for Reflecting Surfaces. Samuel V. Hoffman	293
PALLADIUM, Ruthenium and Rhodium. Arc-Spectra of. H. A. Row-	
land and R. R. Tatnall	286
PHOTOGRAPHIC and Visual Observations of Holmes' Comet. E. E.	
Barnard	41
PHOTOMETRIC Determination of Light Curves of Variable Stars. E. C.	
Pickering · · · · · · · ·	281
PLATES Sensitive to Ultra-violet Rays. New Method of Preparing.	
V. Schumann	220
POTSDAM, Large Telescope for	395
PRESSURE, Effect of, on Wave-length. W. J. Humphreys and J. F.	373
Mohler	114
of the "Reversing Layer" of the Solar Atmosphere. L. E. Jewell,	
J. F. Mohler and W. J. Humphreys	138
Potassium and Sodium Vapors, Fluorescence of. Eilh. Wiedemann	. 3-
and G. C. Schmidt	207
PROMINENCES, Effect of a Total Eclipse of the Sun on the Visibility	/
of the Solar. George E. Hale	374
PROTUBERANCES observed July 15 and September 30, 1895. J. Fényi	192
PULKOWA REFRACTOR, Auxiliary Lens for Spectrographic Investiga-	192
tions with the. A. Bélopolsky	147
RADIATION, Mr. F. W. Very's Remarks concerning my Note on Laws	14/
of. F. Paschen - · · · · · · ·	150
Recent Publications, pp. 80, 164, 242, 314, 402.	. 50
Reviews, pp. 78, 229, 303, 396.	
LL. / oi andi Jo2i Jao.	

REFLECTING SURFACES, Cylinder Oils for. Samuel V. Hoffman	PAGE 293
REFRACTION in the Atmosphere of Jupiter	394
REFRACTOMETER, New Form of. C. Pulfrich	259
REFRACTOR, Auxiliary Lens for Spectrographic Investigations with	-39
the Pulkowa. A. Bélopolsky	147
of Cambridge Observatory, Bruce Spectroscope for. H. F. Newall	266
"REVERSING LAYER" of the Solar Atmosphere, Pressure of. L. E.	
Jewell, J. F. Mohler and W. J. Humphreys	138
RHODIUM, Ruthenium and Palladium, Arc-Spectra of. H. A. Row-	
land and R. R. Tatnall	286
ROMAN COLLEGE, Solar Observations at the, during Second Half of	
1895. P. Tacchini	252
1895. P. Tacchini	294
ROTATION, Law of the Sun's. J. Wilsing	247
RUTHENIUM, Rhodium and Palladium, Arc-Spectra of. H. A. Row-	
land and R. R. Tatnall	286
SODIUM and Potassium Vapors, Fluorescence of. Eilh. Wiedemann	
and G. C. Schmidt	207
SOLAR ATMOSPHERE, Pressure of the "Reversing Layer" of the. L. E.	
Jewell, J. F. Mohler and W. J. Humphreys	138
Solar and Metallic Lines, Coincidence of. L. E. Jewell -	89
Observations during Second Half of 1895. P. Tacchini -	252
Prominences, Effect of a Total Eclipse of the Sun on the Visi-	
bility of the. George E. Hale	374
Protuberances observed July 15 and September 30, 1895. J. Fényi	192
Spectrum Wave-lengths, XI., p. 141; XII., p. 201; XIII., p. 356.	
H. A. Rowland.	
SPECTRA of Certain Elements, Effect of Pressure on the Wave-lengths	
of the Arc. W. J. Humphreys and J. F. Mohler	114
of Rhodium, Ruthenium and Palladium. H. A. Rowland and	
R. R. Tatnall	286
of the Electric Arc and the Sun, Appearance of Lines in. L. E.	
Jewell	89
SPECTROGRAPH, Maximum Efficiency in the Use of the. F. L. O.	
Wadsworth	321
SPECTROGRAPHIC INVESTIGATIONS, Auxiliary Lens for. A. Bélo-	
polsky	147
Spectroscope (Bruce) of the Cambridge Observatory. H. F. Newall	266
Concave Grating as an Analyzing or Direct Comparison. F. L. O.	
Wadsworth	47
SPECTROSCOPES, Notes on Astronomical. F. L. O. Wadsworth	169
SPECTROSCOPY, Standards in	1

INDEX OF SUBJECTS			411
			PAGE
Spectrum of Clèveite Gas. C. Runge and F. Paschen -			4
of Mars. L. E. Jewell			255
Optical Device for Completely Isolating or Cutting out any	Desir	red	
Portion of the Diffraction. F. L. O. Wadsworth -			169
Wave-lengths in the Infra-red. James E. Keeler -	-		63
Wave-lengths, Table of Solar. XI., p. 141; XII., p. 201; 3			
STANDARDS in Astrophysics and Spectroscopy			1
STAR Z Herculis, Variable. N. C. Dunér			348
STARS, Light Curves of Variable, determined Photometrically.			34-
Pickering			281
Sun, Effect of a Total Eclipse of, on the Visibility of the Solar			201
nences. George E. Hale			374
Sun, Wave-length of D <sub>3</sub> in the. J. F. Mohler and L. E. Jew.	-11		351
Sun's Rotation, Law of the. J. Wilsing			
			247
		*	395
THEORY of Comet's Tails, Electrical. R. A. Fessenden -		4-	36
ULTRA-VIOLET Rays, New Method of Preparing Plates Sensi			-0-
V. Schumann		220,	
URANINITE, Gases Obtained from. J. Norman Lockyer -			29
VAPORS, Fluorescence of Sodium and Potassium. Eilh. Wie			
and G. C. Schmidt			207
VARIABLE & Cephei, Short Period. L. A. Eddie			227
Stars, Light Curves of, Determined Photometrically. E.	c. Pu	cr.	_
ering	-	*	281
			348
The Algol, B.D.+17° 4367. E. C. Pickering -			200
VENUS, Professor Mascari's Observations of			226
VERY'S, Mr. F. W., Remarks Concerning my Note on Laws of			
tion. F. Paschen			150
VISIBILITY of the Solar Prominences, Effect of a Total Eclips			
Sun on the. George E. Hale WAVE-LENGTH, Effect of Pressure on. W. J. Humphreys and			374
WAVE-LENGTH, Effect of Pressure on. W. J. Humphreys and	id J.	F.	
Mohler			114
of some of the Helium Lines in the Vacuum Tube and o	f D <sub>3</sub>	in	
the Sun. J. F. Mohler and L. E. Jewell		•	351
the Sun. J. F. Mohler and L. E. Jewell WAVE-LENGTHS in the Infra-red Spectrum. James E. Keeler	-		63
Table of Solar Spectrum. XI., p. 141: XII., p. 201; XIII., H. A. Rowland.			
	-		215
Test of the Forty-inch Objective of the. James E. Keele			-

For titles of Reviews see table of contents.

## INDEX TO VOLUME III.

## AUTHORS.

AUTHORS.	
AMES, J. S. Röntgen's X Rays	294
Recent Spectroscopic Work of Eder and Valenta: "Über drei verschiedene Spectren des Argons." "Über die Spectren von	
Kupfer, Silber und Gold"	396
BARNARD, E. E. Photographic and Visual Observations of Holmes'	
Comet	41
BÉLOPOLSKY, A. On the Performance of an Auxiliary Lens for Spec-	
trographic Investigations with the Thirty-inch Refractor of the	
Pulkowa Observatory	147
DUNÉR, N. C. On the Variable Star Z Herculis	348
EDDIE, L. A. The Short Period Variable & Cephei	227
FÉNYI, J. On Two Solar Protuberances observed July 15 and Sep-	
tember 30, 1895	192
FESSENDEN, REGINALD A. Outline of an Electrical Theory of Com-	
ets' Tails	36
FROST, E. B. REVIEW OF	
Spectroscopy of Binary Systems	232
HALE, GEORGE E. Note on the Application of Messrs. Jewell, Hum-	
phreys and Mohler's Results to Certain Problems of Astro-	
physics	156
Yerkes Observatory, University of Chicago, Bulletin No. 1	215
The Effect of a Total Eclipse of the Sun on the Visibility of	
the Solar Prominences	374
REVIEWS OF:	
"The Sun." C. A. Young	235
Observations des Protubérances solaires faites à l'Observatoire	
d'Odessa. A. Kononowitsch, N. Zwietinowitsch, A. Orbinskij	241
HOFFMAN, SAMUEL V. Note on the Use of Cylinder Oils for Reflect-	
ing Surfaces	293
HUMPHREYS, W. J., and J. F. MOHLER. Effect of Pressure on the	
Wave-lengths of Lines in the Arc-Spectra of Certain Elements	114
HUMPHREYS, W. J., J. F. MOHLER, and L. E. JEWELL. Note on the	
Pressure of the "Reversing Layer" of the Solar Atmosphere	138
	-

## INDEX OF AUTHORS

413

JEWELL, L. E. The Coincidence of Solar and Metallic Lines.  Study of the Appearance of Lines in the Spectra of the Electri	
Arc and the Sun	- 80
The Spectrum of Mars	255
JEWELL, L. E., and J. F. MOHLER. On the Wave-length of some of	
the Helium Lines in the Vacuum Tube and of Da in the Su	
JEWELL, L. E., J. F. MOHLER, and W. J. HUMPHREYS. Note on th	
Pressure of the "Reversing Layer" of the Solar Atmospher	
KEELER, JAMES E. Recent Researches bearing on the Determinatio	
of Wave-lengths in the Infra-red Spectrum	- 63
Test of the Forty-inch Objective of the Yerkes Observatory	
REVIEWS OF:	
Recherches spectrales sur l'étoile Altair. Reconnaissance d'u	n
mouvement orbital et d'une atmosphère. H. Deslandres	- 78
Spectrographische Untersuchungen des Saturnringes. A. Bé	1-
opolsky	- 79
On the Photographic Spectrum of the Great Nebula in Orion	n.
J. Norman Lockyer	- 229
Proposed Methods of Applying the Object-Glass Prism t	
Measurement of Stellar Motions. H. Deslandres, E. W.	
Maunder	- 131
LOCKYER, J. NORMAN. On the New Gases obtained from Uraninit	
MOHLER, J. F., and W. J. HUMPHREYS. Effect of Pressure on the	
Wave-lengths of Lines in the Arc-Spectra of Certain Element	
Mohler, J. F., W. J. Humphreys, and L. E. Jewell. Note on the Pressure of the "Reversing Layer" of the Solar Atmospher	
MOHLER, J. F., and L. E. JEWELL. On the Wave-length of some	
the Helium Lines in the Vacuum Tube and of D <sub>3</sub> in the Su	
NEWALL, H. F. The Modern Spectroscope. XVII. Description of	
Spectroscope (The Bruce Spectroscope) recently constructe	
for use in connection with the twenty-five-inch Refractor of the	
Cambridge Observatory	- 266
PASCHEN, F. On Mr. F. W. Very's Remarks Concerning my Note of	n
Laws of Radiation	- 150
PASCHEN, F., and C. RUNGE. On the Spectrum of Clèveite Gas	- 4
Pickering, E. C., The Algol Variable B.D.+ 17° 4367 -	- 200
Light Curves of Variable Stars Determined Photometrically	- 281
Harvard College Observatory. Circular, No. 3, p. 77; No. 4,	p.
162; No. 5, p. 213; No. 6, p. 296.	
PULFRICH, C. A New Form of Refractometer	- 259
ROWLAND, H. A. Preliminary Table of Solar Spectrum Wave-length	S.
XI., p. 141; XII., p. 291; XIII., p. 356.	

ments. IV. Rhodium, Ruthenium and Palladium 286 RUNGE, C., and F. PASCHEN. On the Spectrum of Clèveite Gas - 4 SCHMIDT, G. C., and EILH. WIEDEMANN. Fluorescence of Sodium and Potassium Vapors, and its Significance in Astrophysics - 207 SCHUMANN, V. On a new Method of preparing Plates Sensitive to Ultra-violet Rays 220, 387 SCHUSTER, ARTHUR. Note on the Results of Messrs. Jewell, Humph-
SCHMIDT, G. C., and EILH. WIEDEMANN. Fluorescence of Sodium and Potassium Vapors, and its Significance in Astrophysics - 207 SCHUMANN, V. On a new Method of preparing Plates Sensitive to Ultra-violet Rays 220, 387
and Potassium Vapors, and its Significance in Astrophysics - 207 SCHUMANN, V. On a new Method of preparing Plates Sensitive to Ultra-violet Rays 220, 387
SCHUMANN, V. On a new Method of preparing Plates Sensitive to Ultra-violet Rays 220, 387
Ultra-violet Rays 220, 387
behoster, Arthor. Mote on the Results of Messis, Jewen, Humph-
reys and Mohler 292
TACCHINI, P. Solar Observations made at the Royal Observatory of
the Roman College during the Second Half of 1895 - 252
TATNALL, R. R., and H. A. ROWLAND. The Arc-Spectra of the
Elements. IV. Rhodium, Ruthenium and Palladium - 286
WADSWORTH, F. L. O. The Modern Spectroscope. XV. On the
Use and Mounting of the Concave Grating as an Analyzing or
Direct Comparison Spectroscope 47
XVI. A Simple Optical Device for Completely Isolating or
Cutting Out any Desired Portion of the Diffraction Spec-
trum, and some further Notes on Astronomical Spectro-
scopes 169
XVIII. On the Conditions of Maximum Efficiency in the Use
of the Spectrograph 321
REVIEWS OF:
On the Newtonian Constant of Gravitation, C. V. Boys 303
Report of the Smithsonian Astrophysical Observatory for the
year 1895, S. P. Langley. Smithsonian Report for 1895, pp.
74-80. F. L. O. Wadsworth 398
WIEDEMANN, EILH., and G. C. SCHMIDT. Fluorescence of Sodium
and Potassium Vapors, and its Significance in Astrophysics - 207
WILSING. J. On the Law of the Sun's Rotation 274

